



# JTRS Embedded Cluster (Aka Cluster X)

presented to

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# Purpose



- Provide an update on the emerging Soldier Cluster (Cluster X) that targets small, embedded form factors for the Objective Force.



# Agenda

- Emerging communications architectures
- Emerging requirements
- Proposed acquisition approach
- Status

# Emerging Communications/ Networking Architectures

- *FCS requires a network of networks solution*

- *Backbone Network*

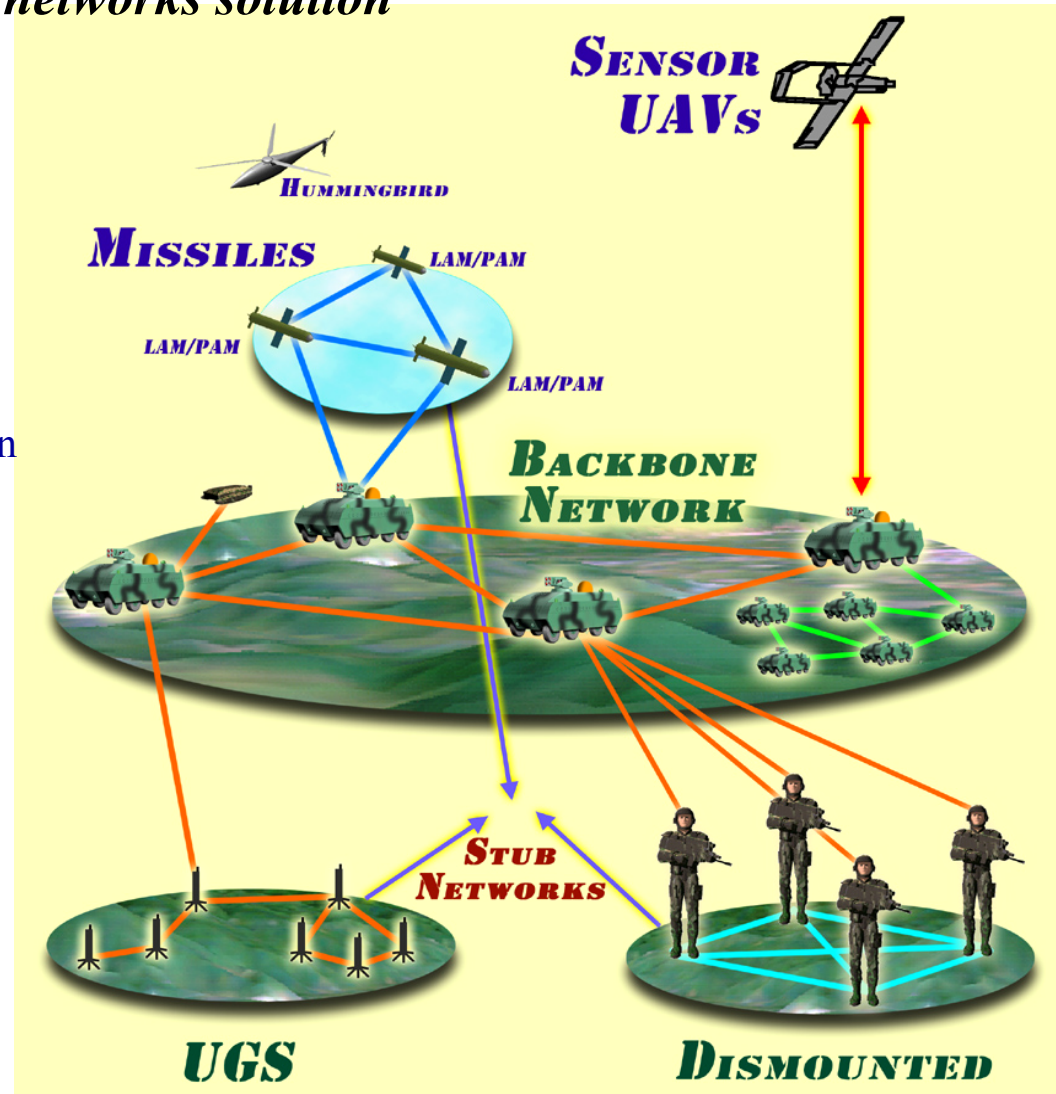
- Used for Imagery, Data, and Voice Network

- *High performance Networks*

- Used for video distribution
- Sensor UAVs Network
- Intra-echelon video distribution Network
- Robotic sensors Network

- *Stub Networks*

- Dismounts
- Loitering Attack missile (LAM)/ Precision Attack Missile (PAM)
- Unattended Ground Sensors (UGS)
- SMART munitions





# Emerging Requirements

- JTRS: The Ground domain encompasses three operational configurations: Hand-held, dismounted and vehicular.
- MUOS: must support communications on the move when and where needed in all environments, to include naturally scintillated, double-canopy forested, mountainous, and multi-path urban environments, while engaged in combat operations. User terminals will include lightweight handheld and manpackable terminals for conventional and SOF ground forces, transportable terminals, and terminals installed on vehicles, fixed and rotary wing aircraft, ships, submarines, and cruise missiles.
- Land Warrior: Light weight, low power, wearable squad level tactical communications.
- Objective Force: FCS / Objective Force will require communications devices to support a number of dismounted and special purpose applications
  - OFW
  - UAV CRPs
  - Sensor Platforms / Products
  - Robotic Vehicles
  - Others (munitions, NETFIRES, etc)



# Current Handheld Program

- U.S. SOCOM has been designed the Lead Procuring Activity for the JTRS Cluster II (Handheld).
- Phase I was initiated as sole source contract with Thales to convert MBITR (AN/PRC-148) to JTRS Software Communications Architecture Compliant.
  - Provides SINCGARS voice, VHF FM, UHF FM, and Havequick.
  - Funded through Army JTRS JPO program (as directed by DAE)
- SOCOM seeking funding support to execute Phase II Program to competitively develop a ORD compliant handheld and manpack radios.



# Proposed Cluster X Approach

- Army take the lead to develop a new JTRS Cluster focused on supporting small, dismounted and embedded applications that:
  - Leverages the S&T investments through technology transition
  - Addresses OF schedule timelines
  - Satisfies Future Combat Systems (FCS) and Objective Force dismounted / embedded requirements
  - Satisfies JTRS ORD requirements.



# Proposed Cluster X Approach (Cont.)

- Leverage S&T investments in FY03/04 to deliver SUO waveform:
  - Deliver SCA Compliant waveform and full documentation to JTRS JPO Waveform Library
  - Delivery Core-framework light (implementation of JTRS SCA optimized for small, low power devices)
  - Ensure no licensing fees for either product (Government Purpose Rights to waveform and core framework)
- Initiate Cluster X SDD phase for development of embedded radio solution.
  - Integrate the appropriate waveforms from Cluster 1 contract and S&TCD SUO development.





# SUO Communications Development

- ✓ DARPA SUO SAS demonstrated Radio and waveform with vehicles at Lakehurst, NJ - Jul / Aug 02
- ✓ DARPA SUO SAS demonstrated Radio and waveform in Dismounted Environment at Ft. Benning, GA, 2nd-3rd Week Oct 02
- ✓ CERDEC NSOF ATD competitive award to ITT leveraging SUO waveform for communications, contract award Jun 02
- ✓ SUO Trade Off Analysis to include Networked Fires, Sept 02
- ✓ CERDEC OTA to ITT to provide communication prototypes to Objective Force Warrior ATD and government owned waveform, award 6 NOV 02



# Cluster X – SDD Approach

- New start competitive SDD contract to develop JTRS ORD compliant hardware
  - Designed to meet threshold and KPP requirements
  - Focuses on Army FCS / Objective Force requirements. Addresses Tri-Service requirements as applicable.
- Designed as modular, embeddable form factor for integration into a variety of platforms.
  - Solder Systems (Land Warrior / Obj. Force Warrior)
  - Unattended Ground Sensors
  - Munitions (?)
  - Small Tactical UAVs
  - Unattended Ground Vehicles



# Initial Estimate of Schedule FY04 SD&D Start



- ASARC - Dec 03
- DAB: Jan 04
- SD&D Contract Award - Jan 04
- Pre-LRIP OIPT - Dec 05
- LRIP LL award - Jan 06 (OPA Funded)
- LRIP award – Jan 07 (OPA Funded)
- FRP Award - Oct 08 (OPA Funded)



# Required Quantities

<u>Platform</u>	<u>QTY</u>	<u>Solution</u>
Legacy handheld (AN/PRC-126)	18,565	(Cluster II)
Land Warrior	TBD	(Cluster X)
Small UAVs	TBD	(Cluster X)
UGV	TBD	(Cluster X)
Precision Fires (Netfires, etc)	TBD	(TBD)
Sensors	TBD	(Cluster X)
Other	TBD	(TBD)



# Current Status

- FCS ASARC in Oct 02 – Decision to fund the SD&D phase for Cluster X
- PMO TRCS has forming team to develop Request for Proposal and ASARC / DAB Documentation
  - Joint Technical Team with CECOM RDEC on SLICE program execution and Cluster X technical support.
- PMO TRCS, FCS LSI, FCS UA Networks, PM WIN-T, PM Soldier Systems jointly participating in ICWG to ensure Network connectivity for FCS employment (networking protocols, Security Architecture, Network Management approaches and solutions, etc)
- Working towards Industry Day in Late January 2002.